FIELD OF THE INVENTION

[0001] The invention relates to ammunition for firearms and pneumatic smooth-bore weapons and can be used for producing bullets for cartridges for hunting and sporting guns.

BACKGROUND ART

[0002] An arrow-shaped bullet is known in the conventional art. This bullet is produced from a solid bar, the front part of which is tapered and the rear part of which is deformed to create an aerodynamic empennage (tail section) in the shape of longitudinal surfaces (see U.S. Pat. No. 3,846,878, published on Nov. 12, 1974).

[0003] The disadvantage of the method for producing such a bullet is its high manufacturing complexity.

[0004] Another method for producing an arrow-shaped bullet is known in the conventional art, see U.S. Pat. No. 5,515,785, published on May 14, 1996. This method deforms the rear part of a tubular blank to create an aerodynamic empennage (tail section) and insert a functional filling (core) in the tube's cavity. The rear part of a tubular blank is deformed by inelastic deformation (plastic flow) of the tube's material, and the thickness of the tube's walls is altered.

[0005] After the empennage is formed, a core is inserted in the tube's cavity. A core can have a granular or jelly filling, e.g., a load released at the moment the bullet hits the target. This core is kept in the tube's cavity by friction or capillary forces. This method is not used for inserting solid cores, e.g., metal cores.

[0006] The disadvantage of this method is its high manufacturing complexity. Also, a bullet produced by this method cannot be used for commercial or sport hunting.

[0007] A cartridge comprising a shell having means for inflammation (a primer), a propelling charge, a damage agent, and one or more wads is also known in the conventional art (see U.S. Pat. No. 5,239,928, published on Aug. 31, 1993). The drawback of this cartridge is that it is not possible to use arrow-shaped bullets.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 illustrates a method for producing a bullet according to the claimed method.

[0009] FIG. 2 illustrates a method of longitudinally clamping a blank between two crimping matrixes.

[0010] FIG. 3 illustrates a bullet with an extractor in the shape of an aerodynamic needle.

[0011] FIG. 4 illustrates the ammunition cartridge with muzzle wads and a bullet having an extractor in the shape of an aerodynamic needle and the ammunition in which the damage agent is further fastened with a spring.

[0012] FIG. 5 illustrates a multi-bullet ammunition cartridge, with bullets fastened through the bottom wads, and single-bullet ammunition cartridge.

DESCRIPTION OF THE INVENTION

[0013] The object of the present invention is to remove the above drawbacks, namely, to develop an inexpensive relatively simple method for producing a bullet suitable for different kinds of targets and having low aerodynamic resistance, and also to develop an ammunition (cartridge) in which this bullet is used.

[0014] In order to achieve this object, a method for producing an arrow-shaped bullet includes the steps of deforming the rear part **103** (see **FIG. 1**) of a tubular blank **101** to create the aerodynamic empennage (tail section, or tail fins) and inserting a core **102** inside the front part **104** of the tubular blank. The core **102** is inserted in the tubular blank **101** before its deformation. The core **102** is fastened inside the blank **101** by a simultaneous deformation of the front and rear parts (**104, 103**) of the blank **102,** to form a taper **150** on the front portion of the blank. The deformation is carried out by pressing the blank walls without altering the thickness thereof.

[0015] A second object of the invention is a bullet produced by the method described above.

[0016] In the preferred embodiments of the invention, the deformation is carried out by longitudinally clamping the blank **101** between two crimping matrices **206,**

207 (see **FIG. 2**). In order to keep the bullet inside the ammunition, and while it moves up the bore in the front part of the core **102**, an extractor **308** is added to the core's material, and the core **102** is inserted in the blank **101** (see **FIG. 3**). The extractor **308** protrudes beyond the edge **309** of the blank **101**, to make it possible to clamp the front part of the blank **101**.

[0017] The extractor **308** is formed to be geometrically coupled with the muzzle wad **410** (see **FIG. 4**). When the core **102** is produced as a combination of a metal armoring rod and a soft filling, the extractor **308** is made of the metal of the core's rod. The extractor **308** can be formed in the shape of an aerodynamic needle, in order to improve the bullet's aerodynamic properties. The core is formed as a set of damage agents in order to increase the impact effect of the bullet.

[0018] Another object of the invention is providing an ammunition cartridge **411** comprising a shell with a means of inflammation (primer), a propelling charge **412**, one or more wads **410**, and a damage agent, including one or more bullets produced by the method described above.

[0019] To fasten a damage agent in the ammunition **411**, a securing spring **413** is further added that generally follows the shape of the damage agent in the compressed state and thereby keeps the compressed shell. The spring **413** is fastened in the segments of the muzzle wad **410**. The damage agent is inserted therein. A spring **314** is elastically deformed by compressing it and fixing it inside the damage agent and the spring **413** is inserted in the compressed state in the ammunition.

[0020] In order to fasten several bullets in a simple cartridge **411**, a through bottom wad **516** is further produced having openings for the surfaces of the bullets' tail sections **105**. The wad is inserted in the ammunition in such a way that the wad is inserted between the propelling charge and the bullets' central portions **308**. The surfaces of the bullets' tail sections **105** fit into the wad's openings, and the bullets' tail sections **105** protrude beyond the wad's forward boundary and are inserted into the propelling charge's material. As shown in **FIG. 5**, the central portion of the blank **101** can be shaped as a polygon in cross-

section, e.g., a triangle, hexagon, etc., or may be round/circular in cross-section, as shown in **FIG. 1**.